

# First Maltese record of *Stephanopachys quadricollis* (Marseul, 1879) (Coleoptera, Bostrichidae)

David Mifsud<sup>1</sup>, Gianluca Nardi<sup>2,3</sup>

**1** Institute of Earth Systems, Division of Rural Sciences and Food Systems, University of Malta, Msida MSD 2080, Malta **2** Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale “Bosco Fontana”, Sede di Bosco Fontana – Corpo Forestale dello Stato, Strada Mantova 29, I-46045 Marmirolo (MN), Italy **3** Università degli Studi di Roma “Sapienza”, Dipartimento di Biologia e Biotechnologie “Charles Darwin”, Via Alfonso Borelli 50, I-00161 Rome, Italy

Corresponding author: Gianluca Nardi ([l\\_nardi@hotmail.com](mailto:l_nardi@hotmail.com))

---

Academic editor: T.K. Philips | Received 6 April 2016 | Accepted 27 June 2016 | Published 21 July 2016

---

<http://zoobank.org/AEFAF6C5-0B80-4FC3-ADCC-B4CF779DC79A>

---

**Citation:** Mifsud D, Nardi G (2016) First Maltese record of *Stephanopachys quadricollis* (Marseul, 1879) (Coleoptera, Bostrichidae). ZooKeys 606: 65–75. doi: 10.3897/zookeys.606.8753

---

## Abstract

Three specimens of *Stephanopachys quadricollis* (Marseul, 1878) were recently found in Malta in UV light traps and represent the first record of this species for this country. Although *S. quadricollis* is native to the Mediterranean basin, it is not yet clear if these Maltese records are due to a natural population or to an interception. Distributional, nomenclatural and biological data on this species are summarized, and a new synonymy is established: *Stephanopachys quadricollis* (Marseul, 1879) = *Stephanopachys quadraticollis* Kocher, 1956, **syn. n.**

## Keywords

Bostrichidae, new record, new synonymy, Malta, Italy

## Introduction

The Bostrichidae of the Maltese Islands are represented by ten species of which two are definitely aliens but their establishment is unclear (Nardi and Mifsud 2015). A recent capture of *Stephanopachys quadricollis* (Marseul, 1879) in Malta, discussed herein, is recorded for the first time from the Maltese Islands.

## Material and methods

The beetles were identified following the work of Borowski and Węgrzynowicz (2012). The authorship of *Stephanopachys quadricollis* is attribute to Marseul (1879) (see forward “Notes”). The distribution pattern is expressed also by a chorotype according to Vigna Taglianti et al. (1999). The systematic and botanic nomenclature follow The Plant List (2013). Possible interpolations are given in square brackets. The following abbreviations are used in the text: ex = specimen/s; leg. = legit or legerunt.

## Acronyms of specimen depositories

<b>CDM</b>	D. Mifsud private collection, Malta
<b>CGN</b>	G. Nardi private collection, Cisterna di Latina (Latina), Italy
<b>CNBFVR</b>	Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale “Bosco Fontana” di Verona, Sede di Bosco Fontana, Marmirolo (Mantua), Italy
<b>MCSG</b>	C. Mancini collection c/o Museo civico di Storia naturale, Genoa, Italy (R. Poggi, pers. comm., 2016)
<b>MZUF</b>	Museo di Storia Naturale, Sezione di Zoologia “La Specola”, Università degli Studi di Firenze, Florence.

## Taxonomy

### *Stephanopachys quadricollis* (Marseul, 1878)

**Material examined.** ITALY, Liguria: Monte di [= Mount of] Portofino [(Genova)], 1910, [C.] Mancini leg., 1 ex (MCSG); M.te [= Monte di] Portofino [(Genova)], VI.1923, Dr. [A.] Andreini leg., 1 ex (MZUF); Zignago [(La Spezia)], 17.VII.1963, S. Failla leg., 1 ex (MZUF). Calabria: [Sila National Park,] Camigliatello [(Cosenza), 1300 m], 18.VI.1978, [F. Angelini leg.], 1 ex (MZUF, collection F. Angelini); Parco Nazionale della Sila [= Sila National Park] (Cosenza), Monte Altare, 1580 m, 39°25.205700'N 16°34.694312'E, 24.VII.2009, L. Spada, M. Bardiani, A. Biscaccianti & A. Campanaro leg., [direct collection, in a forest of *Pinus nigra* ssp. *laricio* Maire (A.B. Biscaccianti & L. Spada, pers. comm., 2016)] 1 ex (CNBFVR). MALTA, Hal-Far [35°48.760020'N, 14°30.480840'E], 1.IX.–5.XI.2015, 3 ♀♀, in UV light traps situated in human habitation, D. Mifsud leg. (CDM, CGN).

**Chorotype and distribution.** Mediterranean (cf. Borowski 2007, as *S. quadricollis* (Fairmaire, 1878) [sic!], Borowski and Węgrzynowicz 2007, as *S. quadricollis* (Fairmaire in Marseul 1878) [sic!], Borowski and Węgrzynowicz 2012, as *S. quadricollis* (Fairmaire, 1878) [sic!]). This species is recorded from: Algeria, Croatia, France (Cor-

sica included), Greece, Israel, Italy (Sicily included), Lebanon, Morocco, Portugal, Spain (Balearic Islands included), Syria, Tunisia, Asiatic Turkey and Ukraine (cf. Halperin and Damoiseau 1980, Nardi 2004, Borowski 2007, Brustel et al. 2013). Moreover, it was intercepted in Sweden (Lundberg 1995, Borowski 2007, Brustel et al. 2013), Germany and Argentina (Walker 2005), while the record for Israel (Halperin and Damoiseau 1980) was recently overlooked (Borowski 2007, Brustel et al. 2013).

**Ecology.** *Stephanopachys* Waterhouse, 1888 is the sole genus of Bostrichidae specialized to feed on gymnosperms (Liu et al. 2008) and was considered as exclusively phloeophagous (cf. Lesne 1911, Lawrence 2010, Brustel et al. 2013). However, *S. conicola* Fisher, 1950, a Nearctic species develops in cones of *Pinus monophylla* Torr. et Fr. and on decaying *Juniperus occidentalis* Hooker berries (Borowski and Węgrzynowicz 2012, Tonkel et al. 2014), whereas *S. linearis* (Kugelann, 1792), a Palaearctic species, develop on coniferous trees (*Abies alba* Mill., *P. sylvestris* L., etc.) (Borowski and Węgrzynowicz 2012, Brustel et al. 2013), but exceptionally also in old wood of *Quercus* (Koch 1989).

*Stephanopachys quadricollis* is found from sea level up-to mountain biotopes (cf. Kocher 1956, as *S. quadraticollis* [sic!], Angelini 1986, 1991, Bahillo de la Puebla et al. 2007, Brustel et al. 2013) and the most important host-plants include *Pinus halepensis* Mill. and *P. pinaster* Aiton (Perris 1862, as *Dinoderus (Apate) substriatus* Payk. [misidentification], Lesne 1897, Sahlberg 1913b, Español 1955, 1965, Halperin and Damoiseau 1980, Bahillo de la Puebla et al. 2007, Borowski and Węgrzynowicz 2012, Brustel et al. 2013). The species is however known to develop on other Pinaceae including: *Abies alba* (Lesne 1897), *Cedrus atlantica* (Endl.) Manetti ex Carrière, *Pinus nigra* J.F. Arnold and *P. sylvestris* (Brustel et al. 2013). The larvae of *S. quadricollis* develop in or under bark of death wood in damaged trees which are still alive (under partially removed bark, in or near wounds following pruning by forest personel or lightning) (Brustel et al. 2013). The larvae of *Clanoptilus marginellus* (Olivier, 1790) (Coleoptera, Malachiidae) (Perris 1862, as *Malachius marginellus* Fab.), *Opilo domesticus* (Sturm, 1837) and *O. mollis* Linnaeus, 1758 (Coleoptera, Cleridae) are predatory on those of *Stephanopachys quadricollis* (Perris 1862, Lesne 1904), whereas *Entedon stephanopachi* Heqvist, 1959 (Hymenoptera, Eulophidae) is a primary parasitoid of other *Stephanopachys* species in Sweden and USA (Heqvist 1959, Schauff 1988, Gumovsky 2010).

**Notes.** The Maltese specimens of *Stephanopachys quadricollis* do not show significant differences from those examined from other territories. In Italy, this species is rare and localized and was recorded from the following regions: Piemonte (Lesne 1897, Schilsky 1899, Lesne 1901, Luigioni 1929, Porta 1929), Liguria (Luigioni 1929), Basilicata (Angelini 1986), Calabria (Angelini 1991) and Sicily (Vitale 1928, Luigioni 1929, Porta 1929, Audisio et al. 1995, Sparacio 1997, Nardi 2004). A record from Maritime Alps (Porta 1929), probably refers to French sites near the Italian border (Lesne 1897: 339, 1901: 84). Specimens from Piemonte (without locality of collection) were originally collected and recorded by Baudi as *S. substriatus* (Paykull,

1800) (Baudi 1873, 1890, in both cases as *Dinoderus substriatus* Payk.). Lesne (1897, 1901) examined material collected by Baudi from Piemonte and recorded the presence of only *S. quadricollis* from the mentioned region. Thus, Baudi's records from Piemonte could in reality belong to only *S. quadricollis*, since this latter species was described (Marseul 1879) only after the first record of Baudi (1873). However, during the present study it was not possible to re-examine this material. The record of Luigioni (1929) for Liguria, is probably based on the above cited specimen collected in 1910, since A. Doderò from the Museo civico di Storia naturale (Genoa), previously sent many unpublished records from this region to his best friend, P. Luigioni (R. Poggi, pers. comm., 2016).

Most of the above-mentioned Italian literature records provide only the region of collection for *S. quadricollis*, with the consequence that few precise locations are known. These include: Cugno Ruggeri, 1400–1500 m, on the Pollino Massif in Basilicata (Angelini 1986); Camigliatello, 1250–1300 m, on the Sila plateau in Calabria (Angelini 1991); contrada Tremonti near Messina (Vitale 1928), and Messina (Luigioni 1929) in Sicily. *Stephanopachys quadricollis* was collected from very few coastal regions in Italy. These include localities in Sicily and Mount of Portofino in Liguria (see material examined). In Sicily, Vitale (1927) collected a specimen of this species beating *Juglans regia* tree on the 1<sup>st</sup> of April 1927.

The occurrence of *Stephanopachys quadricollis* in Malta, is not the sole insular record so far known; this species is also recorded from the Balearic Islands (cf. Bahillo de la Puebla et al. 2007), from Meleda Island in Croatia (Ganglbauer 1904, Vrydagh 1961) and from Lesbos Island in Greece (Sahlberg 1913a, 1913b). Moreover it is also known to occur in some mainland coastal areas: e.g. Mount of Portofino in northern Italy (see above), in southern France (Brustel and Aberlenc 2014), in the Iberian Peninsula (Español 1955, 1965, 1974, Bahillo de la Puebla et al. 2007, Baena and Zuzarte 2013, as *S. quadricollis* (Fairmaire, 1878) [sic!]) and in Turkey (Vrydagh 1962).

The native status of *Stephanopachys quadricollis* in Malta is highly probable considering the fact that it is a typical Mediterranean species and that its main host plant, *Pinus halepensis* is autochthonous (Haslam et al. 1977). However, an anthropic origin cannot be excluded. The location from where the Maltese specimens were collected is mainly an industrialized area with several pharmaceutical companies however some pine trees are also present. Interceptions of Palaearctic *Stephanopachys* species are known in other countries. These include *S. quadricollis* in Sweden, Germany and Argentina (see above), *S. substriatus* (Paykull, 1800) in Belgium (Coulon 1993) and Germany (Lucht 1987, Köhler and Klausnitzer 1998, Geis 2002), and a southern European unidentified species in USA (Haack and Cavey 2000, Haack 2006).

As reported above, the Maltese specimens were taken at UV light. The use of light traps is a useful method to capture Bostrichidae. In fact, four other species of this family were previously collected at light in Malta (Nardi and Mifsud 2015), while 17 species were collected during a large light-traps project in Israel (Chikatanov et al. 2006). However, in Israel *S. quadricollis* was not collected in this project possibly due to the



fact that its abundance was reported as “sporadic and rare” (Halperin and Damoiseau 1980: 48). In France, in a large artificial forest of *Pinus pinaster*, a single specimen of *S. quadricollis* was collected by an emergence trap (Brin et al. 2011), and the capture of *Stephanopachys* spp. using intercept traps is rare (Brustel et al. 2013).

In the IUCN Red List of European saproxylic beetles, *Stephanopachys quadricollis* is classified as “Least concern” (Nieto and Alexander 2010), whereas in the Italian list its status is indicated as “Vulnerable” (Nardi et al. 2014, 2015). The only recent Italian record of this species is from the Sila National Park, and this provides further evidence of the coleopterological importance of this Park (cf. Angelini 1991, Mazzei et al. 2011), where the species probably develops on *Pinus nigra* ssp. *laricio* Maire. This same host plant for *S. quadricollis* was also recorded by Sainte-Claire Deville (1914: 545) in Corsica. From a conservation point of view, *S. quadricollis* is known from other Italian localities such as Pollino and Portofino which are already designated as protected areas and this should therefore contribute towards the survival of this species in Italy.

It must be underlined that Heyden (1891: 468) erroneously considered *Stephanopachys quadricollis* as a synonym of *S. substriatus* (Paykull, 1800), and attributed the description of the former to “Frm.Ab’. 1879. 83. [= Fairmaire, 1879: 83, L’Abeille]”. Later, he (Heyden 1906: 421) citing Lesne (1897: 339), listed correctly *S. “quadricollis* Mars. Ab’. 1879. 83 [= Marseul 1879: 83]” as a valid species. Fairmaire was indicated as the one who described this species as “(Fairmaire, 1878)” by various recent authors (Borowski 2007, Baena and Zuzarte 2013, Nardi et al. 2014, Borowski and Węgrzynowicz 2012, Nardi et al. 2015) or as “(Fairmaire in Marseul, 1878)” by others (Borowski and Węgrzynowicz 2007, Liu 2010). Nevertheless, this authorship is erroneous, since, this species was described by Marseul (1879: 83), as “*Dinoderus 4-collis* Fairm.”, who also wrote: “Discovered by M. Lamey, and described by M. Leon Fairmaire, I do not know where” [translated]. Probably, the material described by Marseul (1879) was labeled as “*Dinoderus 4-collis* Fairm.”, but this was an unpublished name. In fact, Bedel (1894: 149, footnote 3) wrote: “This species [= *Stephanopachys quadricollis* Mars.] was never described by Fairmaire; its first description appeared on *L’Abeille*, XVIII, Nouv. [2], p. 83 (1878). I saw the *type* [see also Vrydagh (1962: 6)] of S. de Marseul, belonging to M. A. Lamey” [translated]. This opinion was followed by almost all other authors (e.g. Lesne 1897, Schilsky 1899, Lesne 1901, Ganglbauer 1904, Lesne 1904, 1905, Heyden 1906, Lesne 1909, Sainte-Claire Deville 1910, 1914, Corrêa De Barros 1924, Winkler 1927, Luigioni 1929, Porta 1929, Portevin 1931, Peyerimhoff 1933, Normand 1936, Sainte-Claire Deville 1937, Lesne 1938, 1939, Seabra 1943, as *S. quadricollis* Marsh. [sic!], Novak 1952, Español 1955, Kocher 1956, Vrydagh 1956, 1960, 1961, 1962, Español 1965, 1974, Halperin and Damoiseau 1980, Lucht 1987, Audisio et al. 1995, Lundberg 1995, Sparacio 1997, Nardi 2004, Walker 2005, Bahillo de la Puebla et al. 2007, Brin et al. 2011, Brustel et al. 2013, Brustel 2014, Brustel and Aberlenc 2014), nevertheless as stated by Heyden (1891, 1906) and by other authors (López-Colón 2000, López-Colón et al. 2001, Grosso-Silva 2005), the year when *S. quadricollis* was described

is 1879 and not 1878. The year 1878 was included in the title of number 21 of the section “Nouvelles et Faits divers de L’Abeille” that includes the original description of this species (Marseul 1879). Numbers 18–25 of this section belong to volume 17 of 1879 and this information is also reported in the “Tables of Contents” [translated] of the same volume.

Finally, Kocher (1956: 114) published an unjustified emendation (ICZN 1999, art. 33.2.1) of *Stephanopachys quadricollis*: “*S. quadraticollis* (err. *quadricollis*) Mars.”. Unfortunately, this name is an available one (ICZN 1999, art. 19.1) and so the following synonymy is here established: *Stephanopachys quadricollis* (Marseul, 1879: 83) = *Stephanopachys quadraticollis* Kocher, 1956: 114, **syn. n.**

## Acknowledgements

Thanks are due to Vincenzo Andriani (Corpo Forestale dello Stato, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale “Bosco Fontana” di Verona, Verona), Fernando Angelini (Francavilla Fontana, Brindisi), Paolo Audisio (Sapienza Università di Roma, Rome), Davide Badano (Istituto di Biologia Agroambientale e Forestale, Consiglio Nazionale delle Ricerche (IBAF-CNR), Monterotondo Scalo, Rome), Marco Bardiani (Corpo Forestale dello Stato, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale “Bosco Fontana” di Verona, Verona), Alessandro B. Biscaccianti (Laboratorio di Entomologia ed Ecologia Applicata (LEEA), Dipartimento PAU, Università degli Studi “Mediterranea” di Reggio Calabria, Reggio Calabria), Roberto Casalini (Museo Civico di Zoologia, Rome), Fabio Cianferoni (Museo di Storia Naturale dell’Università degli Studi di Firenze, Sezione di Zoologia “La Specola”, Florence), Paolo Cornacchia (Porto Mantovano, Mantua), Enzo Gatti (Corpo Forestale dello Stato, Ufficio Territoriale per la Biodiversità, Belluno), Gianfranco Liberti (Uboldo, Varese), Andrea Liberto (Rome), Franco Mason (Corpo Forestale dello Stato, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale “Bosco Fontana” di Verona, Verona), Giuseppe Pace (Rome), Emanuele Piattella (Museo di Zoologia, Sapienza Università di Roma, Rome), Roberto Poggi (Museo civico di Storia naturale, Genoa), Gianluca Scaglioni (Porto Mantovano, Mantua), Laura Spada (Valeggio sul Mincio, Verona), Augusto Vigna Taglianti (Museo di Zoologia, Sapienza Università di Roma, Rome) and Vincenzo Vomero (Museo Civico di Zoologia, Rome), for help in the field or in the lab, and/or for enabling us to study the collections in their care. We thank Jerzy Borowski (Warsaw University of Life Sciences, Poland), and an anonymous colleague for their reviews. Part of the work that contributed to this publication has been funded in the framework of the project LIFE09 ENV/IT/000078 ManFor C.BD. “Managing forests for multiple purposes: carbon, biodiversity and socio-economic wellbeing”, coordinated by Giorgio Matteucci (Istituto di Biologia Agroambientale e Forestale, Consiglio Nazionale delle Ricerche (IBAF-CNR), Monterotondo Scalo, Rome).

## References

- Angelini F (1986) Coleotterofauna del Massiccio del Pollino (Basilicata–Calabria) (Coleoptera). *Entomologica* 21: 37–125.
- Angelini F (1986) Coleotterofauna del Massiccio del Pollino (Basilicata–Calabria) (Coleoptera). *Entomologica* 21: 37–125.
- Angelini F (1991) Coleotterofauna dell’Altipiano della Sila (Calabria, Italia) (Coleoptera). *Memorie della Società entomologica italiana* 70(1): 171–254.
- Audisio P, Gobbi G, Liberti G, Nardi G (1995) Coleoptera Polyphaga IX (Bostrichoidea, Cleroidea, Lymexyloidea). In: Minelli A, Ruffo S, La Posta S (Eds) Checklist delle specie della fauna italiana, 54. Calderini, Bologna, 1–29.
- Baena M, Zuzarte AJ (2013) Contribución al estudio de los Bostríquidos de Portugal y actualización del catálogo de la fauna ibérica (Coleoptera, Bostrichidae). *Zoologica baetica* 24: 25–51.
- Bahillo de la Puebla P, López-Colón JI, Baena M (2007) Los Bostrichidae Latreille, 1802 de la fauna ibero-balear (Coleoptera). *Heteropterus Revista de Entomologia* 7(2): 147–227.
- Baudi F (1873) Catalogo dei Dascillidi, Malacodermi e Terebridi della Fauna europea e circum-mediterranea appartenenti alle collezioni del Museo Civico di Genova. *Annali del Museo Civico di Storia Naturale di Genova* (sezione 1) 4: 226–268. doi: 10.5962/bhl.part.9094
- Baudi F (1890) Catalogo dei Coleotteri del Piemonte. *Annali della Reale Accademia d’Agricoltura di Torino* 32 (1889): 1–274.
- Bedel L (1894) Note sur le genre *Stephanopachys* Waterh. (*Dinoderus* auct.) et synopsis des espèces de l’Ancien Monde. *L’Abeille, Journal d’Entomologie* 28(7)[1892–1896]: 149–150.
- Borowski J (2007) Family Bostrichidae Latreille, 1802. In: Löbl I, Smetana A (Eds) Catalogue of Palaearctic Coleoptera, Elateroidea, Derodontoidea, Bostrichoidea, Lymexyloidea, Cleroidea, Cucujoidea, Volume 4. Apollo Books, Stenstrup, 320–328
- Borowski J, Węgrzynowicz P (2007) World catalogue of Bostrichidae (Coleoptera). Mantis Publishing, Olsztyn, 248 pp.
- Borowski J, Węgrzynowicz P (2012) The Powderpost Beetles of the World (Coleoptera: Bostrichidae). Keys for Identification of Species. Vol. 1. Wydawnictwo Mantis, Olsztyn, 461 pp. [16 plates]
- Brin A, Bouget C, Brustel H, Jactel H (2011) Diameter of downed woody debris does matter for saproxylic beetle assemblages in temperate oak and pine forests. *Journal of insect conservation* 15: 653–669. doi: 10.1007/s10841-010-9364-5
- Brustel H (2014) Bostrichidae Latreille, 1802. In: Tronquet M (Ed.) Catalogue des Coléoptères de France. *Revue de l’Association Roussillonnaise d’Entomologie* 23, Supplément, 451–453.
- Brustel H, Aberlenc H-P (2014) Les Bostrichidae Latreille, 1802 de la faune de France: espèces autochtones, interceptées, introduites ou susceptibles de l’être (Coleoptera). *Revue de l’Association Roussillonnaise d’Entomologie* 23(2): 65–68.
- Brustel H, Goux N, Bouyon H, Rogé J (2013) Les *Stephanopachys* de la faune ouest-paléarctique (Coleoptera Bostrichidae) : distribution et reconnaissance des trois espèces françaises au service de l’application de la directive Habitats, Faune, Flore. *L’Entomologiste* 69(1): 41–50.

- Chikatunov V, Kravchenko VD, Dorchin Y, Müller G (2006) The xylophagous beetles (Buprestidae, Lyctidae, Bostrichidae, Anobiidae, Cerambycidae, Scolytidae, Platypodidae) (Coleoptera) collected in the Israeli light trap survey and their association with the major phyto-geographical zones of Israel. *Esperiana. Buchreihe zur Entomologie* 12: 313–320.
- Corrêa De Barros JM (1924) Notas entomologicas. *Broteria. Serie Zoologica* 21: 49–54.
- Coulon MG (1993) Introduction de *Stephanopachys substriatus* (Paykull, 1800) en Belgique (Coleoptera, Bostrichidae). *Bulletin & Annales de la Société royale belge d'entomologie*, 129: 282.
- Español F (1955) Los bostríquidos de Cataluña y Baleares (Col. Cucujoidea). *Publicaciones del Instituto de Biología Aplicada* 21: 107–135.
- Español F (1965) Coleópteros xilófilos observados sobre *Pinus pinaster* en la Sierra de Espadán (Castellón). *Boletín del Servicio de Plagas Forestales* 8(16): 110–114.
- Español F (1974) Nuevos datos sobre los Bostrychidae de la fauna española (Col. Cucujoidea). *Graellsia* 28[1972]: 37–44.
- Ganglbauer CL (1904) Verzeichnis der auf der dalmatischen Insel Meleda vorkommenden Koleopteren nach den Sammelergebnissen des Herrn Frostrates Alois Gobanz. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien* 54: 645–660.
- Geis K-U (2002) Gebietsfremde Splintholz- und Bohrkäfer, nach Mitteleuropa mit Importholz und anderen Gütern eingeschleppt. – Eine Bestandsaufnahme (Coleoptera: Lyctidae, Bostrichidae). *Mitteilungen des Internationalen Entomologischen Vereins, Supplement* 10: 1–100.
- Grosso-Silva JM (2005) Additions to the fauna of Hemiptera and Coleoptera (Insecta) of Serra da Estrela Natural Park (Portugal). *Boletín de la SEA* 36: 185–193.
- Gumovsky AV (2010) A Record of *Sinoxylon anale* Lesne in Ukraine with Notes on False Powder-Post Beetles (Coleoptera: Bostrichidae) and their Chalcidoid Parasitoids (Hymenoptera). *Ukrainska Entomofaunistika* 1(2): 1–8.
- Haack RA (2006) Exotic bark- and wood-boring Coleoptera in the United States: recent establishments and interceptions. *Canadian Journal of Forest Research* 36(2): 269–288. doi: 10.1139/x05-249
- Haack RA, Cavey JF (2000) Insects intercepted on solid wood packing materials at United States ports-of-entry: 1985–1998. In: *Quarantine pests, risks for the forestry sector and their effects on foreign trade. Proceedings on CD-ROM of Silvotecna 14, 27–28 June 2000, Concepcion, Chile. CORMA, Concepcion, Chile, 16 pp.*
- Halperin J, Damoiseau R (1980) The bostrychid beetles (Coleoptera) of Israel. *Israel Journal of Entomology* 14: 47–53.
- Haslam SM, Sell PD, Wolseley PA (1977) *A flora of the Maltese Islands*. Malta University Press, Msida, 560 pp.
- Heqvist K-J (1959) Notes on Chalcidoidea. VI Description of two new species and the male of *Dasyneurophaga japonica* Heqv. (Eulophidae and Pteromalidae). *Entomologisk tidskrift* 80: 140–145.
- Heyden L von (1891) Bostrychidae. In: Reitter E (Ed.) *Catalogus Coleopterorum Europae, Caucasi et Armeniae Rossicae*. R. Friedländer & Sohn, Berlin; Edmund Reitter, Modling; *Revue d'Entomologie*, Caen, 467–468.



- Heyden L von (1906) Bostrychidae. In: Reitter E (Ed.) *Catalogus Coleopterorum Europae, Caucasi et Armeniae Rossicae*. Editio secunda. R. Friedländer & Sohn, Berlin; Edmund Reitter, Paskau; *Revue d'Entomologie*, Caen, 421–422.
- International Commission on Zoological Nomenclature [ICZN] (1999) International code of zoological nomenclature. Fourth edition adopted by the International Union of Biological Sciences. International Trust for Zoological Nomenclature, London, 306 pp.
- Koch K (1992) *Die Käfer Mitteleuropas. Ökologie*. Band 2. Goecke & Evers, Krefeld, 440 pp.
- Kocher L (1956) *Catalogue commenté des Coléoptères du Maroc, fascicule IV. Clavicornes et groupes voisins*. Travaux de l'Institut Scientifique Chérifien, Série zoologie 11: 1–136.
- Köhler F, Klausnitzer B (Eds) (1998) *Verzeichnis der Käfer Deutschlands*. Entomologische Nachrichten und Berichte (Dresden) Beiheft 4: 1–185.
- Lawrence JF (2010) 6.3. Bostrichidae Latreille, 1802. In: Leschen RAB, Beutel RG, Lawrence JF (Eds) *Handbook of Zoology, Coleoptera Vol. 2: Morphology and Systematics (Elateroidea, Bostrichiformia, Cucujiformia partim)*. Walter de Gruyter, Berlin, 209–217.
- Lesne P (1897) Revision des Coléoptères de la famille des Bostrychidae. 2<sup>e</sup> Mémoire. Bostrychides Hypocéphales. Dinoderinae. *Annales de la Société Entomologique de France* 66: 319–350.
- Lesne P (1901) Synopsis des Bostrychides paléartiques. *L'Abeille, Journal d'Entomologie* 30 (1900–1906): 73–136.
- Lesne P (1904) Supplément au Synopsis des Bostrychides Paléartiques. *L'Abeille, Journal d'Entomologie* 30[1900–1906]: 153–168.
- Lesne P (1905) Notes additionnelles et rectificatives sur les Bostrychides paléartiques. *L'Abeille, Journal d'Entomologie* 30[1900–1906]: 249–251.
- Lesne P (1909) *Stephanopachys substriatus* Paykull, Bostrychide nouveau pour la faune française [Col.]. *Bulletin de la Société Entomologique de France* 1909: 102–103.
- Lesne P (1911) Le régime alimentaire des Bostrichides [Col.]. *Bulletin de la Société Entomologique de France* 1911: 135–138.
- Lesne P (1938) *Coleopterorum Catalogus*, 10 pars 161 Bostrychidae. Auspiciis et auxilio W. Junk, ed. S. Schenkling, s'Gravenhage, 84 pp.
- Lesne P (1939) Contribution à l'étude des Bostrychides de l'Amérique centrale [Coléoptères]. *Revue Française d'Entomologie* 6: 91–123.
- Liu L-Y (2010) Microstructural Characters of Lyctinae and Dinoderinae (Coleoptera: Bostrichidae). *Psyche* Volume 2010, Article ID 607568, 8 pp. doi: 10.1155/2010/607568
- Liu L-Y, Schönitzer K, Yang J-T (2008) A review of the literature on the life history of Bostrichidae (Coleoptera). *Mitteilungen der Münchner Entomologischen Gesellschaft* 98: 91–97.
- López-Colón JI (2000) Los Bostrichidae Latreille, 1802 de la fauna de Marruecos (Coleoptera). *Biocosme Méditerranéen* 16(4)[1999]: 171–221.
- López-Colón JI, Melic A, González Peña CF, Beltrán Valen JR, Blasco Zumeta J (2001) *Insecta: Coleoptera (Familia 40): Bostrichidae Latreille, 1802*. *Catalogus de la Entomofauna Aragonesa* 25: 15–28.
- Lucht WH (1987) *Die Käfer Mitteleuropas, Katalog*. Goecke & Evers, Krefeld, 342 pp.
- Luigioni P (1929) *I Coleotteri d'Italia. Catalogo sinonimico-topografico-bibliografico*. Memorie della Pontificia Accademia delle Scienze, *I Nuovi Lincei* (2) 13: [4 +] 1–1159 [+ 1].

- Lundberg S (1995) *Catalogus coleopterorum Sueciae*. Naturhistoriska Riksmuseet & Entomologiska Föreningen, Stockholm, 122 unnumbered pp.
- Marseul SA de (1879) Nouvelles et faits divers de L'Abeille. Deuxième Série. – N° 21. – 1878. L'Abeille, Journal d'Entomologie 19: 81–84.
- Mazzei A, Bonacci T, Contarini E, Brandmayr P (2011) Coleotteri saproxilobionti del Parco Nazionale della Sila (Calabria). Quaderno di Studi e Notizie di Storia Naturale della Romagna 32: 81–93.
- Nardi G (2004) Fauna Europaea: Bostrichidae. In: Audisio P (Ed.) Fauna Europaea: Coleoptera 2, Beetles. Fauna Europaea version 2.6.2. <http://www.faunaeur.org> [accessed 26 February 2015, last update 29 August 2013]
- Nardi G, Baviera C, Audisio P (2014) Famiglia Bostrichidae (including Lyctinae), appendice 1 e schede tecniche on line ([www.iucn.it](http://www.iucn.it)). In: Audisio P, Baviera C, Carpaneto GM, Biscaccianti AB, Battistoni A, Teofili C, Rondinini C (Eds) Lista Rossa IUCN dei Coleotteri saproxilici italiani. Comitato italiano IUCN e Ministero dell'ambiente e della tutela del territorio e del Mare, Roma, 132 pp.
- Nardi G, Baviera C, Audisio P (2015) Bostrichidae. In: Carpaneto GM, Baviera C, Biscaccianti AB, Brandmayr P, Mazzei A, Mason F, Battistoni A, Teofili C, Rondinini C, Fattorini S, Audisio P (Eds) A Red List of Italian Saproxylic Beetles: taxonomic overview, ecological features and conservation issues (Coleoptera). *Fragmenta entomologica* 47(2): 69.
- Nieto A, Alexander KNA (2010) European Red List of Saproxylic Beetles. Publications Office of the European Union, Luxembourg, 45 pp.
- Normand H (1936) Contribution au Catalogue des Coléoptères de la Tunisie (9<sup>e</sup> fascicule). *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* 27: 144–164.
- Novak P (1952) Kornjaši jadranskog primorja. (Coleoptera). *Jugoslavenska Akademija Znanosti i Umjetnosti*, Split, 524 pp.
- Perris É (1862) Histoire des insectes du Pin maritime. Supplément aux Coléoptères et rectifications. *Annales de la Société Entomologique de France* (4) 2: 173–243.
- Peyerimhoff P de (1933) Les Coléoptères attachés aux conifères dans le Nord de l'Afrique. *Annales de la Société Entomologique de France* 102: 359–412.
- Porta A (1929) *Fauna Coleopterorum Italica*. III. Diversicornia. Stabilimento Tipografico Piacentino, Piacenza, 466 pp.
- Portevin G (1931) *Encyclopédie Entomologique*, XIII. Histoire Naturelle des Coléoptères de France. Tome II. Polyphaga: Lamellicornia, Palpicornia, Diversicornia. Lechevalier, Paris, 543 pp.
- Sahlberg J (1913a) Entomologiska forskningsresor uti trakterna vid östra Medelhafvet företagna af John Sahlberg och hans son Unio Saalas under åren 1903 och 1904. Öfversigt af Finska Vetenskaps-Societetens Förhandlingar 55A(9): 1–76.
- Sahlberg J (1913b) Coleoptera mediterranea orientalia, quae in Aegypto, Palaestina, Syria, Caramania atque in Anatolia occidentali anno 1904 collegerunt John Sahlberg et Unio Saalas. Öfversigt af Finska Vetenskaps-Societetens Förhandlingar 55A(19): 1–281.
- Sainte-Claire Deville J (1910) Catalogue critique des Coléoptères de la Corse. G. Poisson et C<sup>le</sup>, Caen, 273–336. [Published separately as a supplement of *Revue d'Entomologie* 27]

- Sainte-Claire Deville J (1914) Catalogue critique des Coléoptères de la Corse. G. Poisson et C<sup>le</sup>, Caen, 401–573. [Published separately]
- Sainte-Claire Deville J (1936) (†) Catalogue raisonné des Coléoptères de France. (Complete et publiée par Mequignon A.). L'Abeille, Journal d'Entomologie 36(2): 161–264.
- Schauff ME (1988) The species of *Entedon* in America North of Mexico (Hymenoptera: Eulophidae). Journal of the New York Entomological Society 96(1): 30–62.
- Schilsky J (1899) Die Käfer Europa's. Nach der Natur beschrieben von Dr. H.C. Küster und Dr. G. Kraatz. Fortgesetzt von J. Schilsky. Bauer und Raspe (Emil Küster) 36: 1–357.
- Seabra AF de (1943) Contribuições para o inventário da fauna lusitânica. Insecta. Coleoptera. Memórias e Estudos do Museu Zoológico da Universidade de Coimbra 142: 1–152.
- Sparacio I (1997) Mediterraneo 4. Coleotteri di Sicilia. Parte seconda. L'Epos, Palermo, 208 pp.
- The Plant List (2013) Version 1.1. Published on the Internet. <http://www.theplantlist.org/> [accessed 1st January 2016]
- Tonkel KC, Rector BG, Longland WS (2014) *Stephanopachys conicola* Fisher (Coleoptera: Bostrichidae) feeding on decaying Western Juniper (*Juniperus occidentalis* Hooker) berries: a novel association for Bostrichidae. The Coleopterists Bulletin 68(3): 403–406. doi: 10.1649/072.068.0311
- Vigna Taglianti A, Audisio PA, Biondi M, Bologna MA, Carpaneto GM, De Biase A, Fattorini S, Piattella E, Sindaco R, Venchi A, Zapparoli M (1999) A proposal for a chorotype classification of the Near East fauna, in the framework of the Western Palearctic region. Biogeographia, Lavori della Società italiana di Biogeografia (n.s.) 20: 31–59.
- Vitale F (1928) Coleotteri nuovi o poco conosciuti di Sicilia. Memorie della Società entomologica italiana 6[1927]: 44–54.
- Vrydagh JM (1956) Contribution à l'étude des Bostrychidae. 8 – Collection de la « Zoologische Sammlung Bayerischen Staates » à Munich. Bulletin. Institut royal des Sciences naturelles de Belgique 32(6): 1–20.
- Vrydagh JM (1960) Contribution à l'étude des Bostrychidae. 23. – Collection de la Section Zoologique du Musée Naturelle Hongrois à Budapest. Bulletin. Institut royal des Sciences naturelles de Belgique 36(39): 1–32.
- Vrydagh JM (1961) Contribution à l'étude des Bostrychidae. 27. – Collection du Musée d'Histoire naturelle Senckenberg à Francfort-sur-Main. Bulletin. Institut royal des Sciences naturelles de Belgique 37(4): 1–23.
- Vrydagh JM (1962) (†) Contribution à l'étude des Bostrychidae (Coleoptera). 31. Troisième collection du Musée zoologique de l'Université Humboldt à Berlin. Bulletin. Institut royal des Sciences naturelles de Belgique 38(4): 1–47.
- Walker K (2005) Auger beetle (*Stephanopachys quadricollis*) Updated on 10/21/2011. PaDIL (Pest and Diseases Image Library) - <http://www.padil.gov.au>
- Winkler A (1927) Bostrychidae In: Winkler A (Ed.) Catalogus Coleopterorum regionis palaearcticae. Pars 7. Albert Winkler Verlag, Wien, 795–798.